

REMARKS

Claims 10, 17-20, 26, and 28-39 are pending in the present application. In the office action mailed April 20, 2005 (the "Office Action"), claims 10, 17-20, and 36-39, were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,230,039 to Grossman et al. (the "Grossman patent"). The Examiner also rejected claims 26 and 28-35 under 35 U.S.C. 103(a) as being unpatentable over the Grossman patent in view of U.S. Patent No. 6,452,603 to Digmam (the "Digmam patent").

Claims 10, 17-20 and 36-39 are patentable over the Grossman patent because the combination of the teachings of the Grossman patent and the knowledge of those ordinarily skilled in the art does not teach or suggest the combination of limitations recited by the claims. After reviewing the Examiner's lengthy comments, it is clear that the Examiner fails to understand the operation of the system described in the Grossman patent. Although much of the Examiner's characterizations of the Grossman patent are inaccurate, there are a couple of very obvious mischaracterizations which by themselves form the basis for withdrawing the rejection of the claims.

First, the Examiner asserts that the values calculated during the process described in the Grossman patent are signed. This assertion is incorrect. The only signed value is the input coordinate word 301 shown in Figure 3a, which is not calculated by the described process. The output coordinate word 311, shown in Figure 3b, does not have a sign bit. The masked value that results from applying a mask value to the outside map factor field 307 is not signed because the sign bit 308 of the input coordinate word 301 is not considered in the calculation of the mask value. The output coordinates for a clamping operation are also not signed. These values are either zero or all ones, corresponding to the minimum and maximum coordinate range of the texture map. *See* col. 8, lines 56-62, and Figure 2. Since none of the values "calculated" by the process described in the Grossman patent are signed values, it is not possible for an output texture coordinate to be selected from a plurality of concurrently calculated texture coordinate values and the input texture coordinate value based on signs of those values.

The Examiner asserts that "[t]he border texture coordinates are some specific examples of the texture coordinates in the format shown in Figure 3a, with each having sign bits as well as the outside map factor field 307. Therefore, the border texture coordinates are signed

values.” *See* the Office Action, page 39. The Examiner also asserts that “[t]he border texture coordinates are calculated because the border texture coordinates are highly dependent on the ranges of the input texture map for each texture map.” *See* the Office Action, page 36. The Examiner’s position that the “border texture coordinates” are signed values, as shown in Figure 3a, is inconsistent with the plain teaching of the Grossman patent. As described in the Grossman patent, Figure 3a illustrates an input texture coordinate 301. *See* col. 9, lines 10-41. As further described in the Grossman patent, the texture coordinates 301 are processed by the span processors 120. After processing, the most significant 24 bits of the texture coordinate 301 are passed as an output coordinate word 311 to an image engine 121 after being manipulated by the span processor 120. The output coordinate output by the span processor is shown in Figure 3b. As previously discussed, the output coordinate word 311 does not have a sign bit.

The Examiner’s position is inconsistent with the teachings of the Grossman patent because the input coordinate word 301 is not “calculated,” but represents the input word that is used in a calculation. The calculated value, as described in the Grossman patent, is the output coordinate word 311 shown in Figure 3b, which is not a signed value. Thus, Examiner’s characterization that the “border texture coordinate” is a calculated signed value having the format of Figure 3a, which is described as an input texture coordinate, is contrary to the teachings of the Grossman patent.

Second, the Examiner characterizes the Grossman patent as teaching concurrent calculation of “the border texture coordinates and the masked texture coordinates.” *See* the Office Action pages 6-7. The term “border texture coordinate” appears to have been made-up by the Examiner. It will be assumed that a “border texture coordinate” is related to the minimum and maximum fractional coordinate values of a texture map. As known, and as described in the Grossman patent, the minimum fractional coordinate value for a texture map is zero, and the maximum fractional coordinate value for a texture map is all ones. *See* col. 8, lines 59-62, col. 11, line 61-col. 12, line 8, and Figure 2 (illustrating the “texture space” as being bounded between zero and one along the s- and t-axes). Contrary to the Examiner’s position, the “border texture coordinates” are not calculated, but are simply either zero or all ones. Because no calculation is necessary to determine the border texture coordinates, then there cannot be any concurrent calculation of the border texture coordinates and the masked texture coordinates.

Additionally, even if it is assumed that the border texture coordinates are “calculated,” they are not calculated concurrently with the masked texture coordinates. This is made clear by the flowchart in Figures 5a and 5b, and the description at col. 10, line 51-col. 12, line 12. The masked texture coordinate is first calculated at steps 502-504. Based on the comparison, the output coordinate may be set equal to 0000 or FFFF, the minimum and maximum fractional coordinates of a texture map. However, that determination does not occur until after the masked value is calculated and compared with a comparison value. Additionally, as described in the Grossman patent, the border texture coordinates may not be set (i.e., “calculated”) to either 0000 or FFFF under two conditions. The first condition is if the masked value is not equal to the comparator value, that is, steps 505, 508, 509, and 522. The second condition is if the masked value is equal to the comparator value and the outside map factor (note, not the masked value) is equal to zero, that is 505, 510, 506, 507, 511, and 522. Since the border values may never be set to either 0000 or FFFF, it cannot be the case that the masked texture coordinate and the border texture coordinates are calculated concurrently. Additionally, no where in the Grossman patent is it described that the masked texture coordinates and the border texture coordinates could be “calculated” concurrently.

Moreover, the “masked texture coordinate” as referenced by the Examiner, is never one of the values that could be potentially provided to the image engine 522 as a coordinate. The masked value is calculated only for the comparison with the value in the compare register 432, 433. The process described in the Grossman patent provides an output coordinate word 311 to the image engine 522 that is one of four different values. First, the input coordinate (reformatted into the output coordinate word 311 by taking the most significant 24-bits of the input coordinate) having the kill bit set (steps 505, 508, 509, and 522) can be provided. Second, the input coordinate (reformatted into the output coordinate word 311) without the kill bit set can be provided (steps 505, 510, 506, 507, 511, and 522). Third, the fractional coordinate of the output coordinate word 311 can be set to 0000 (steps 505, 510, 506, 507, 512, 520, 525, 521, and 522) and provided. Fourth, the fractional coordinate of the output coordinate word 311 can be set to FFFF (steps 505, 510, 506, 507, 512, 520, 523, 524, and 522) and provided. Absent from the choices for an output coordinate word 311 is the masked value, which the Examiner refers to as the “masked texture coordinate.” Since the masked value is not

one of the values that can be potentially provided to the image engine 522 as a coordinate, there is never a “selection” process that includes the masked value, despite the Examiner’s assertion to the contrary.

Another fundamental problem with the Examiner’s rejection of the claims is that a *prima facie* case of obviousness is not established. As known, a *prima facie* case of obviousness requires that the prior art reference or references teach or suggest all the claim limitations. The Examiner has clearly admitted that the Grossman patent fails to teach calculating the A and B values as recited in the claims, and further fails to teach selecting the A and B values based on the resulting values. *See* the Office Action at page 9. The Examiner dismisses these limitations recited in the claim by stating that it would have been obvious to have calculated two values in the manner recited in the claims, and moreover, that the specific formulas used in selecting the texture coordinates and recited in the claims are “Routine Experimentation.” *See* the Office Action at page 11-12.

One problem with the Examiner’s assertion is that the values calculated using the formulas do not have any meaning in the process described in the Grossman patent. The Examiner has characterized that a “masked texture coordinate” and “border texture coordinates” are calculated. Assuming for the sake of argument that these values are calculated during the process described in the Grossman patent, the recited equations do not work in calculating any usable values, as will be described in more detail below.

With respect to the masked texture coordinate, the process illustrated in Figures 5a and 5b, and described at col. 10, line 52-col. 12, line 12 calculates a “masked value” or a “masked input coordinate.” The masked input coordinate value is provided by ANDing the mask value in either mask register 430, 431 with the outside map factor 307. The masked value is then compared to values in either the compare registers 432, 433. The comparison is a simple equality comparison. That is, it is either equal to the compare value or not.

None of the equations provide a suitable value for comparison as described in the Grossman patent. Moreover, the calculation of the masked input coordinate is provided by a simple Boolean AND operation, which can be easily carried out. In contrast, the equations recited in the claims involve multiplication and addition/subtraction operations. Even if the

equation could be substituted into the process described in the Grossman patent, it is unlikely one would do so since the increased complexity would be motivation to not use those equations.

With respect to the “border texture coordinates,” the process described in the Grossman patent sets the coordinate fraction field to 0000 (i.e., the smallest value or zero border of the texture map) if the sign bit 308 of the input coordinate word 301 is negative and sets the coordinate fraction field to FFFF (i.e., the largest fractional coordinate value of the texture map) if the sign bit 308 is positive. The Examiner suggests that the equations could have been substituted in some way for the calculation of the least positive coordinate or the most positive coordinate of a texture map. This is unlikely since in the process described in the Grossman patent, the border texture coordinates are simply set to be 0000 and FFFF (for the fractional field). In contrast, applying the equations requires performing multiplication and addition/subtraction operations, which would increase complexity of the process and system described in the Grossman patent without changing the results.

Finally, even if using alternative equations in the process described in the Grossman patent would have been obvious, the Examiner still fails to establish a prima facie case because he has not shown that the choice of someone ordinarily skilled in the art would have been the equations recited. That is, of all the equations that would have been possible, the Examiner has not shown those ordinarily skilled in the art would have used the particular equations currently recited in the claims.

As for the Examiner’s reference to “Routine Experimentation,” and citing to *In re Karlson*, 311 F.2d 581 (C.C.P.A. 1963), the cited case does not make reference to experimentation, routine or otherwise. It is requested that the Examiner provide the page number of *In re Karlson* at which the court stated the proposition for which the case has been cited.

More generally, however, the claims of the present application recite a combination of limitations that would not have resulted from merely removing an element or elements of the system and process described in the Grossman patent. Thus, the holding of *Karlson* is not applicable. In *Karlson*, the claims were found to be obvious based on U.S. Patent No. 2,703,176 to Shuldner (the “Shuldner patent”) because the claims of the application recited structure for a chemical feeder that was essentially disclosed in the Shuldner patent, except that the Shuldner patent disclosed having a screen basket and filler pipe in the chemical feeder. The

court agreed with the Board of Appeals that “it would have been obvious to one having ordinary skill in the art to remove the secreen [sic] and tube in the Shuldner tank to provide ‘a clear and unobstructed interior space’ as in the claims here presented.” *See Karlson*, 311 F.2d at 584. Unlike the claims at issue in *Karlson*, the claims of the present application do not recite a combination of elements that are taught by the Grossman patent, except for removing a step or structure that is also disclosed in the Grossman patent. The argument set forth by the Examiner in the present application is that the claims are obvious because the calculations recited in the claims are *alternatives* to the “calculations” taught in the Grossman patent. This is a different argument than the claims of the present application are obvious because the claims recite combinations of limitations that are disclosed by the Grossman patent except for having a limitation that is made obvious by leaving out a step or structure included in the Grossman patent. Consequently, the rationale of *Karlson* is inapplicable to the Examiner’s current rejection of the claims.

For the foregoing reasons, the rejection of claims 10, 17-20, and 36-39, under 35 U.S.C. 103(a) as being unpatentable over the Grossman patent should be withdrawn.

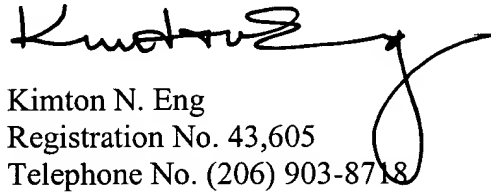
Claims 26 and 28-35 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Grossman patent in view of the Digmam patent.

Even if it is assumed that the Digmam patent discloses the material relied upon by the Examiner, the teachings of the Digmam patent fails to make up for the deficiencies of the Grossman patent as previously discussed. Thus, the combined teachings of the Grossman and Digmam patents fail to teach or suggest the combination of limitations recited by claims 26 and 28-35. Therefore, the rejection of these claims under 35 U.S.C. 103(a) should be withdrawn.

All of the claims pending in the present application are in condition for allowance.
Favorable consideration and a timely Notice of Allowance are earnestly solicited.

Respectfully submitted,

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